

### **REMARKS**

Entry of the foregoing, reexamination and reconsideration of the application identified in caption, as amended, pursuant to and consistent with 37 C.F.R. §1.111 and in light of the remarks which follow, are respectfully requested.

By the above amendments, claims 1 and 6 have been amended to recite that "the luminescent material comprises at least one blue light-emitting phosphor selected from the group consisting of (Zn,Cd)S:Ag, (Zn,Cd)S:Ag,Cl, (Zn,Cd)S:Ag,Cl,Al and (Zn,Cd)S:Ag,Cl,Mg, or a green light-emitting phosphor, (Zn,Cd)S:Cu,Al,Au." Support for these amendments can be found in the specification at least from page 2, line 29 to page 3, line 4.

In the Official Action, claims 1, 2, 5-7 and 10 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,424,467 (*Masuda et al*). Withdrawal of this rejection is respectfully requested for at least the following reasons.

According to one aspect of the present invention as defined by claim 1, a high-brightness phosphor screen is provided comprising a luminescent material for emitting light of a predetermined color, used for color image display. The luminescent material comprises at least one blue light-emitting phosphor selected from the group consisting of (Zn,Cd)S:Ag, (Zn,Cd)S:Ag,Cl, (Zn,Cd)S:Ag,Cl,Al and (Zn,Cd)S:Ag,Cl,Mg, or a green light-emitting phosphor, (Zn,Cd)S:Cu,Al,Au. The high-brightness phosphor screen also comprises a ZnO:Zn phosphor capable of enhancing the brightness of the display. The mixing ratio of the luminescent material to the ZnO:Zn phosphor is varied according to a desired level of the brightness.

According to another aspect of the present invention as defined by claim 6, a method is provided for forming a high-brightness phosphor screen by mixing a luminescent material for emitting light of a predetermined color and a predetermined amount of a ZnO:Zn phosphor. The method comprises the steps of: (a) preparing a phosphor mixture solution by dispersing the luminescent material and the ZnO:Zn phosphor in a solvent, wherein the luminescent material comprises at least one blue light-emitting phosphor selected from the group consisting of (Zn,Cd)S:Ag, (Zn,Cd)S:Ag,Cl, (Zn,Cd)S:Ag,Cl,Al and (Zn,Cd)S:Ag,Cl,Mg, or a green light-emitting phosphor, (Zn,Cd)S:Cu,Al,Au; (b) forming a phosphor layer by depositing the phosphor mixture solvent on a substrate; and (c) evaporating the solvent from the deposited phosphor layer.

*Masuda et al* relates to a cathode-ray tube, phosphor screen which is formed by a mixture of long persistent phosphor and short persistent phosphor (col. 1, lines 10-12).

*Masuda et al* does not disclose each feature of aspects of the present invention as defined by claims 1 and 6. For example, *Masuda et al* does not disclose a luminescent material which comprises at least one blue light-emitting phosphor selected from the group consisting of (Zn,Cd)S:Ag, (Zn,Cd)S:Ag,Cl, (Zn,Cd)S:Ag,Cl,Al and (Zn,Cd)S:Ag,Cl,Mg, or a green light-emitting phosphor, (Zn,Cd)S:Cu,Al,Au, as recited in claims 1 and 6. By comparison, *Masuda et al* discloses various long and short persistent phosphors at column 4, lines 1-14. However, none of the long and short persistent phosphors disclosed by *Masuda et al* are the same as the recited blue light-emitting phosphors (Zn,Cd)S:Ag, (Zn,Cd)S:Ag,Cl, (Zn,Cd)S:Ag,Cl,Al and (Zn,Cd)S:Ag,Cl,Mg, or the recited green light-emitting phosphor, (Zn,Cd)S:Cu,Al,Au.

For at least the above reasons, it is clear that *Masuda et al* does not constitute an anticipation of aspects of the present invention as defined by claims 1 and 6. Accordingly, withdrawal of the §102(b) rejection over *Masuda et al* is respectfully requested.

Claims 3 and 8 stand rejected under 35 U.S.C. §103(a) as being obvious over *Masuda et al* in view of an English abstract of Japanese Patent Document No. 52-030276 (*JP '276*). Withdrawal of this rejection is respectfully requested for at least the following reasons.

As discussed above, *Masuda et al* has no disclosure or suggestion of a luminescent material which comprises at least one blue light-emitting phosphor selected from the group consisting of (Zn,Cd)S:Ag, (Zn,Cd)S:Ag,Cl, (Zn,Cd)S:Ag,Cl,Al and (Zn,Cd)S:Ag,Cl,Mg, or a green light-emitting phosphor, (Zn,Cd)S:Cu,Al,Au, as recited in claims 1 and 6. Moreover, *JP '276* fails to cure this deficiency of *Masuda et al*.

In this regard, *JP '276* discloses that "[a] fluorescent matter for low velocity electron rays comprises 90-40 wt % of Zns:Ag, Cl [sic] system fluorescent matter." Clearly, the "Zns:Ag, Cl system fluorescent matter" disclosed by *JP '276* is not the same as or suggestive of the claimed luminescent material which comprises at least one blue light-emitting phosphor selected from the group consisting of (Zn,Cd)S:Ag, (Zn,Cd)S:Ag,Cl, (Zn,Cd)S:Ag,Cl,Al and (Zn,Cd)S:Ag,Cl,Mg, or a green light-emitting phosphor, (Zn,Cd)S:Cu,Al,Au.

For at least the above reasons, it is apparent that no *prima facie* case of obviousness exists. Accordingly, withdrawal of the §103(a) rejection is respectfully requested.

Claims 4 and 9 stand rejected under 35 U.S.C. §103(a) as being obvious over *Masuda et al* in view of an English abstract of Japanese Patent Document No. 52-030277 (*JP '277*). Withdrawal of this rejection is respectfully requested for at least the following reasons.

*JP '277* does not cure the deficiency of *Masuda et al* discussed above. In this regard, like *Masuda et al*, *JP '277* fails to disclose or suggest a luminescent material which comprises at least one blue light-emitting phosphor selected from the group consisting of (Zn,Cd)S:Ag, (Zn,Cd)S:Ag,Cl, (Zn,Cd)S:Ag,Cl,Al and (Zn,Cd)S:Ag,Cl,Mg, or a green light-emitting phosphor, (Zn,Cd)S:Cu,Al,Au, as recited in claims 1 and 6.

By comparison, *JP '277* discloses that "[the] material comprises (a) 90-40 wt. % of ZnS:Cu, Al system fluorescent matter." Clearly, the "ZnS:Cu, Al system fluorescent matter" disclosed by *JP '277* is not the same as or suggestive of the claimed luminescent material which comprises at least one blue light-emitting phosphor selected from the group consisting of (Zn,Cd)S:Ag, (Zn,Cd)S:Ag,Cl, (Zn,Cd)S:Ag,Cl,Al and (Zn,Cd)S:Ag,Cl,Mg, or a green light-emitting phosphor, (Zn,Cd)S:Cu,Al,Au.

For at least the above reasons, it is apparent that no *prima facie* case of obviousness exists. Accordingly, withdrawal of the §103(a) rejection over *Masuda et al* in view of *JP '277* is respectfully requested.

Claim 11 stands rejected under 35 U.S.C. §103(a) as being obvious over *Masuda et al* in view of an English abstract of Japanese Patent Document No. 11-167868 (*JP '868*). In this regard, the Patent Office has relied on *JP '868* for disclosing that "the phosphor layer is formed by depositing the phosphor mixture solution on the substrate with the application of electrophoresis, screening, photolithography or precipitation" (Official Action at page 4). However, like *Masuda et al*, *JP '868* does not disclose or suggest a luminescent material which comprises at least one blue light-emitting phosphor selected from the group consisting of

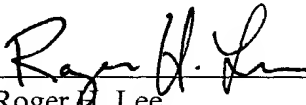
(Zn,Cd)S:Ag, (Zn,Cd)S:Ag,Cl, (Zn,Cd)S:Ag,Cl,Al and (Zn,Cd)S:Ag,Cl,Mg, or a green light-emitting phosphor, (Zn,Cd)S:Cu,Al,Au.

For at least the above reasons, it is apparent that no *prima facie* case of obviousness exists. Accordingly, withdrawal of the §103(a) rejection over *Masuda et al* in view of *JP '868* is respectfully requested.

From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order, and such action is earnestly solicited. If there are any questions concerning this paper or the application in general, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

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**Attachment to AMENDMENT dated April 15, 2003**

**Marked-up Claims 1 and 6**

1. (Amended) A high-brightness phosphor screen, comprising:  
a luminescent material for emitting light of a predetermined color, used for color image display; [and]

the luminescent material comprises at least one blue light-emitting phosphor selected from the group consisting of (Zn,Cd)S:Ag, (Zn,Cd)S:Ag,Cl, (Zn,Cd)S:Ag,Cl,Al and (Zn,Cd)S:Ag,Cl,Mg, or a green light-emitting phosphor, (Zn,Cd)S:Cu,Al,Au; and

a ZnO:Zn phosphor capable of enhancing the brightness of the display,  
wherein the mixing ratio of the luminescent material to the ZnO:Zn phosphor is varied according to a desired level of the brightness.

6. (Amended) A method for forming a high-brightness phosphor screen by mixing a luminescent material for emitting light of a predetermined color and a predetermined amount of a ZnO:Zn phosphor, the method comprising the steps of:

(a) preparing a phosphor mixture solution by dispersing the luminescent material and the ZnO:Zn phosphor in a solvent, wherein the luminescent material comprises at least one blue light-emitting phosphor selected from the group consisting of (Zn,Cd)S:Ag, (Zn,Cd)S:Ag,Cl, (Zn,Cd)S:Ag,Cl,Al and (Zn,Cd)S:Ag,Cl,Mg, or a green light-emitting phosphor, (Zn,Cd)S:Cu,Al,Au;

(b) forming a phosphor layer by depositing the phosphor mixture solvent on a substrate;  
and

(c) evaporating the solvent from the deposited phosphor layer.